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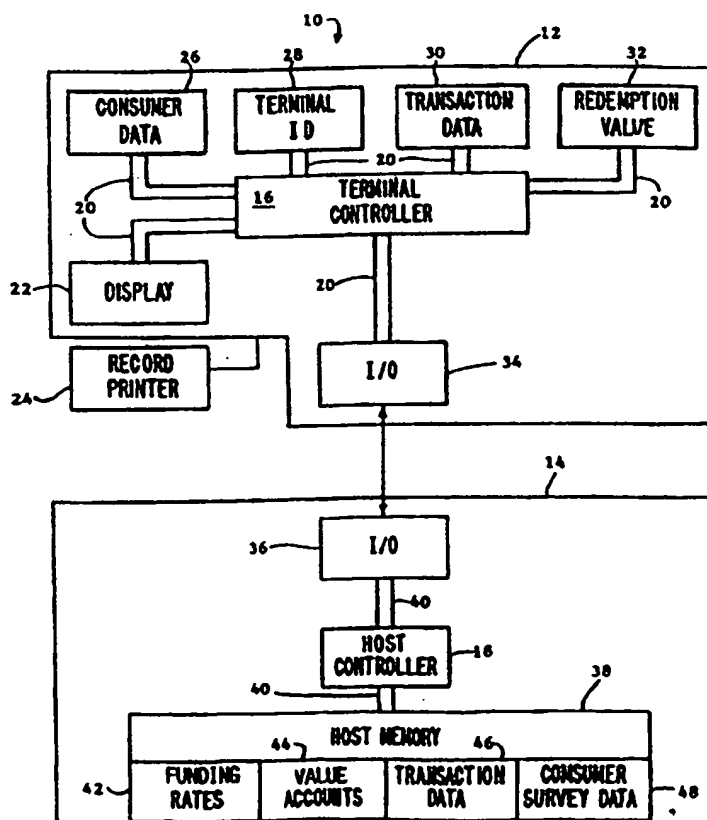
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(54) Title: POINT OF SALE PURCHASING VALUE ACCUMULATION SYSTEM

## (57) Abstract

A neutrally branded, multi merchant redeemable purchasing value accumulation system (10) is provided covering all forms of payment, integrated with the point of sale, and providing real-time earning and redemption of redeemable purchasing value at the point of sale. According to one embodiment, the system (10) includes an authorized point of sale transaction terminal (12), a host memory (38) located remote from the authorized point of sale transaction terminal (12), and a host controller (18) located remote from and in communication with the authorized point of sale transaction terminal (12). A purchasing value banking system (100) is provided comprising a merchant system (105) incorporating a merchant terminal (116), a bank host (104) incorporating a bank account data storage device (114) and an authorization number source (112), and a purchasing value banking system host (102) in communication with the merchant system (105) and the bank host (104).



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## POINT OF SALE PURCHASING VALUE ACCUMULATION SYSTEM

### BACKGROUND OF THE INVENTION

5       The present invention relates to a neutrally branded, multi merchant frequent shopper program covering all forms of payment and integrated with the point of sale.

10       Conventional frequent shopper systems or programs, i.e., systems where a consumer accumulates points or cash based upon the consumer's expenditures, have been problematic for a variety of reasons. A system where points are awarded as a function of the consumer's expenditures is problematic because the consumer does  
15       not accumulate real purchasing value. Rather, the consumer merely accumulates points which have a real value set arbitrarily by the particular company awarding the points. Further, the options for redeeming or spending the points are often limited to a predetermined  
20       catalog of merchandise or services. Finally, the accumulated points are often subject to expiration or devaluation if they are not spent by a certain date.

      Some frequent shopper systems, including the system disclosed in U.S. Patent No. 5,287,268, provide for  
25       accumulation of an actual cash balance. However, these systems are problematic because the cash balance is not immediately accessible by the consumer at the point of sale. Rather, the consumer is either sent a check for the accumulated amount at the end of a specified period  
30       or may access the money through an electronic terminal at the end of a specified period. Further, in the case of the frequent shopper system described in U.S. Patent No. 5,287,268, although a cash balance is accumulated as a percentage of the consumer's expenditures, the

merchant is permitted to arbitrarily vary the accumulation percentage at the point of sale.

Other frequent shopper systems are limited to a single form of payment wherein points or cash are earned  
5 only when the specific form of payment is utilized at the point of sale.

Accordingly, there is a need for a neutrally branded frequent shopper system that ensures the consumer an adequate rate of accumulation which may not  
10 be altered at the point of sale, establishes a redeemable purchase value account which is reserved in the name of the consumer and which is not subject to arbitrary devaluation or expiration, establishes a  
15 redeemable balance which is accessible at the point of sale through integration with the point of sale, which is continuously accessible as a redeemable purchasing value accumulates, and which responds universally to multiple forms of payment.

Additionally, the present invention relates to a  
20 banking system and, more particularly, to a banking system incorporating a purchasing value banking system host wherein banking operations are performed at respective merchant terminals in communication with the purchasing value banking system host.

25 Conventional banking systems, as illustrated in Fig. 11, provide services through a network consisting of a central bank or bank host 200, a set of branch offices 210, and an automated teller network 220. As a bank's customer base increases, so too must its  
30 resources. However, continuing expansion of the conventional banking system requires significant investment in human resources and banking hardware, e.g., branch offices, personal tellers, and automated teller machines. Accordingly, there is a need for an  
35 improved banking system which provides for expansion of

services at a relatively low cost.

#### BRIEF SUMMARY OF THE INVENTION

According to the present invention, a redeemable  
5 purchasing value accumulation system is integrated with  
a point of sale and provides real time earning and  
redemption of purchasing value at the point of sale.  
Further, a purchasing value banking system is provided  
comprising a merchant system, a bank host, and a  
10 purchasing value banking system host in communication  
with the merchant system and the bank host. Banking  
operations are performed by selecting an operation at a  
merchant terminal within the merchant system and by  
communicating the selection to the bank host via the  
15 purchasing value banking system host. In this manner,  
banking services are expanded at low cost by coupling  
the bank host to a purchasing value banking system  
created and maintained under a separate cost center or  
merely by coupling the bank host to existing purchasing  
20 value system hardware.

In accordance with one embodiment of the present  
invention, a point of sale redeemable purchasing value  
accumulation system is provided comprising: an  
authorized point of sale transaction terminal including  
25 a terminal display, a transaction record printer, a  
consumer data recording member responsive to a consumer  
identifier, a transaction terminal identifier, a  
transaction value recording member, a redemption value  
recording member, and a transaction terminal data  
30 input/output port; a host memory located remote from the  
authorized point of sale transaction terminal; and a  
host controller located remote from and in communication  
with the authorized point of sale transaction terminal  
and operative to calculate a transaction credit value  
35 based upon a credit rate stored in the host memory and

based upon a transaction value input at the authorized point of sale transaction terminal, increase an account balance in a redeemable purchase value account designated by the consumer data recording member based upon the transaction credit value, decrease the account balance in the redeemable purchase value account based upon a redemption value input at the authorized point of sale transaction terminal, and send transaction data and redeemable purchase value account balance data to the authorized point of sale transaction terminal.

In accordance with another embodiment of the present invention, a point of sale redeemable purchasing value accumulation system is provided comprising: a plurality of authorized point of sale transaction terminals, each of the terminals including a terminal display, a transaction record printer, a consumer data recording member, a transaction terminal identifier, a transaction value recording member, a redemption value recording member, and a transaction terminal data input/output port; a host memory located remote from the plurality of authorized point of sale transaction terminals; and a host controller located remote from and in communication with the plurality of authorized point of sale transaction terminals and operative to calculate a transaction credit value based upon a credit rate stored in the host memory and a transaction value input at a selected one of the plurality of authorized point of sale transaction terminals, increase an account balance in a redeemable purchase value account designated by the consumer data recording member at the selected authorized point of sale transaction terminal based upon the transaction credit value, decrease an account balance in the redeemable purchase value account based upon a redemption value input at the selected authorized point of sale transaction terminal, and send

transaction data and redeemable purchase value account balance data to the selected authorized point of sale transaction terminal.

In accordance with yet another embodiment of the present invention, a neutrally-branded, multi-merchant, frequent shopper system integrated with a consumer point of sale at a plurality of participating merchants and covering all forms of payment is provided comprising: a consumer redeemable purchase value account established for at least one participating consumer; an authorized point of sale transaction terminal located at a selected participating merchant and including a total expenditure value recording member and a redemption value recording member, wherein the redemption value recording member is operative to record a redemption value which may be limited to a value less than or equal to a balance in the consumer redeemable purchase value account; a net expenditure value determining member responsive to the total expenditure value and the redemption value; and a host controller located remote from and in communication with the authorized point of sale transaction terminal and operative to determine a credit value associated with an expenditure transaction processed at the authorized point of sale transaction terminal, the credit value being a function of a credit rate stored at a location remote from the selected participating merchant and a function of the net expenditure value; increase the balance in the consumer redeemable purchase value account in accordance with the credit value; decrease the balance in the consumer redeemable purchase value account in accordance with the redemption value; and issue a transaction receipt indicating the total expenditure value, the redemption value, the net expenditure value, the credit value, and the balance.



In accordance with yet another embodiment of the present invention, a point of sale redeemable purchasing value accumulation system is provided comprising: a first authorized point of sale transaction terminal including a terminal display, a transaction record printer, a consumer data recording member, a transaction terminal identifier, a transaction value recording member, a redemption value recording member, and a transaction terminal data input/output port; a second authorized point of sale transaction terminal including a terminal display, a transaction record printer, a consumer data recording member, a transaction terminal identifier, an absolute credit value recording member, and a transaction terminal data input/output port; a host memory located remote from the first and second authorized point of sale transaction terminals; and a host controller located remote from and in communication with the first and second authorized point of sale transaction terminals and operative to calculate a transaction credit value based upon a credit rate stored in the host memory and based upon a transaction value input at the first authorized point of sale transaction terminal, increase an account balance in a redeemable purchase value account designated by the consumer data recording member based upon the transaction credit value, decrease the account balance in the redeemable purchase value account based upon a redemption value input at the first authorized point of sale transaction terminal, increase the account balance in the redeemable purchase value account based upon an absolute transaction credit value recorded by the absolute credit value recording member, and send transaction and redeemable purchase value account balance data to the authorized point of sale transaction terminal.

In accordance with yet another embodiment of the present invention, a method of accumulating redeemable purchasing value based upon a point of sale transaction is provided comprising the steps of: designating a  
5 redeemable purchase value account at an authorized point of sale transaction terminal; transmitting a designated redeemable purchase value account identifier and a transaction value input at the authorized point of sale transaction terminal to a host located remote from the  
10 authorized point of sale transaction terminal; calculating a transaction credit value based upon a credit rate stored in a host memory located remote from the authorized point of sale transaction terminal and based upon the transaction value input at the authorized  
15 point of sale transaction terminal; increasing an account balance in the redeemable purchase value account based upon the transaction credit value; decreasing an account balance in the redeemable purchase value account based upon a redemption value input at the authorized  
20 point of sale transaction terminal; and sending transaction data and redeemable purchase value account balance data from a host located remote from the authorized point of sale transaction terminal to the authorized point of sale transaction terminal.

25 In accordance with yet another embodiment of the present invention, a method of accumulating redeemable purchasing value based upon a point of sale transaction is provided comprising: designating a redeemable purchase value account at a selected one of a plurality  
30 of authorized point of sale transaction terminals; transmitting a designated redeemable purchase value account identifier and a transaction value input at the selected authorized point of sale transaction terminal to a host located remote from the plurality of  
35 authorized point of sale transaction terminals;

calculating a transaction credit value based upon a credit rate stored in a host memory located remote from the plurality of authorized point of sale transaction terminals and based upon a transaction value input at the selected authorized point of sale transaction terminal; increasing an account balance in the designated redeemable purchase value account based upon the transaction credit value; decreasing an account balance in the redeemable purchase value account based upon a redemption value input at the selected authorized point of sale transaction terminal; and sending transaction data and redeemable purchase value account balance data from a host located remote from the plurality of authorized point of sale transaction terminals to the selected authorized point of sale transaction terminal.

In accordance with yet another embodiment of the present invention, a method for implementing a neutrally-branded, multi-merchant, frequent shopper program integrated with the point of sale and covering all forms of payment is provided comprising the steps of: identifying a set of participating merchants; identifying at least one participating consumer; establishing a consumer redeemable purchase value account for the at least one participating consumer; determining a total expenditure value associated with a participating consumer expenditure transaction at a selected participating merchant; determining a redemption value associated with the participating consumer expenditure transaction, the redemption value which may be limited to a value less than or equal to a balance in the consumer redeemable purchase value account; determining a net expenditure value associated with the participating consumer expenditure transaction, the net expenditure value being a function of the total

expenditure value and the redemption value; determining a credit value associated with the participating consumer expenditure transaction, the credit value being a function of a credit rate stored at a location remote from the selected participating merchant and a function of the net expenditure value or the total expenditure value; increasing the balance in the consumer redeemable purchase value account in accordance with the credit value; decreasing the balance in the consumer redeemable purchase value account in accordance with the redemption value; and issuing a transaction receipt indicating the total expenditure value, the redemption value, the net expenditure value, the credit value, and the balance.

In accordance with yet another embodiment of the present invention, a method of accumulating redeemable purchasing value based upon a point of sale transaction is provided comprising: calculating a transaction credit value based upon a credit rate stored in a host memory located remote from a first and a second authorized point of sale transaction terminal and based upon a transaction value input at the first authorized point of sale transaction terminal; producing an absolute credit value at the second authorized point of sale transaction terminal; increasing an account balance in a redeemable purchase value account designated at the first authorized point of sale transaction terminal based upon the transaction credit value; increasing the account balance based upon the absolute credit value; decreasing an account balance in the redeemable purchase value account based upon a redemption value input at the authorized point of sale transaction terminal; and sending transaction data and redeemable purchase value account balance data from a host located remote from the authorized point of sale transaction terminal to the authorized point of sale transaction terminal. The

absolute credit value may correspond to a value indicated on an authorized system coupon, a value indicated on an authorized system rebate, or a value indicated on an authorized system absolute credit.

5 In accordance with yet another embodiment of the present invention, a point of sale transaction terminal is provided operative to: display and print transaction data; detect and transmit a consumer identifier; produce and transmit a transaction terminal identification  
10 signal; record and transmit a transaction value; record and transmit a redemption value; and communicate with a host controller located remote from the point of sale transaction terminal so as to receive the transaction data including a transaction credit value and an account  
15 balance in a redeemable purchase value account corresponding to the consumer identifier.

In accordance with yet another embodiment of the present invention, a purchasing value banking system is provided comprising a merchant system, a bank host, and  
20 a purchasing value banking system host. The merchant system incorporates a merchant terminal and the merchant terminal comprises a banking operation interface and a consumer data recording member operative to identify and transmit a purchase value account number and a bank  
25 account number. The bank host incorporates a bank account data storage device. The purchasing value banking system host is in communication with the merchant system and the bank host. The merchant system may further incorporate a merchant host in communication  
30 with one or more merchant terminals. The bank host may further incorporate an authorization number source.

The system host is operative to (i) receive the purchase value account number and the bank account number, (ii) process purchase value account information  
35 as a function of an expenditure transaction executed at

the merchant terminal, (iii) transfer banking operation information and the bank account number from the merchant system to the bank host in response to a banking operation selected at the banking operation interface, and (iv) transfer a banking operation authorization signal from the bank host to the merchant system. The purchase value account information preferably corresponds to a value accumulated as a function of an expenditure transaction executed at a merchant terminal.

In accordance with yet another embodiment of the present invention, a method of executing a banking operation is provided comprising the steps of: identifying a purchase value account number and a bank account number at a merchant terminal; transmitting the purchase value account number and the bank account number to a purchasing value banking system host in communication with the merchant terminal; processing purchase value account information at the purchasing value banking system host as a function of an expenditure transaction executed at the merchant terminal; selecting at least one banking operation at a banking operation interface incorporated in the merchant terminal; transferring information corresponding to the selected banking operation from the merchant terminal to the bank host; and, transferring a banking operation authorization signal from the bank host to the merchant system. The processing step preferably includes the step of accumulating a value as a function of the expenditure transaction.

In accordance with yet another embodiment of the present invention, a merchant terminal is provided to be operative to: identify a purchase value account number and a bank account number; transmit the purchase value account number and the bank account number to a

purchasing value banking system host in communication with the merchant terminal; transmit expenditure transaction data to the purchasing value banking system host, wherein the expenditure transaction data  
5 corresponds to an expenditure transaction executed at the merchant terminal; permit selection of at least one banking operation at a banking operation interface incorporated in the merchant terminal; transmit information corresponding to a selected banking  
10 operation to the purchasing value banking system host; and receive a banking operation authorization signal from the bank host. The merchant terminal is preferably further operative to initiate selective deposit and withdrawal of funds from a specific bank account.

15 Accordingly, it is an object of the present invention to provide a neutrally branded, multi-merchant frequent shopper system and program which is integrated with the point of sale, which covers all forms of payment, and which provides for real time purchasing  
20 value earning and redemption. It is a further object of the present invention to provide a purchasing value banking system comprising a merchant system, a bank host, and a purchasing value banking system host in communication with the merchant system and the bank host  
25 such that present and expanded services may be provided at relatively low costs.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic diagram of a point of sale  
30 redeemable purchasing value accumulation system according to the present invention;

Fig. 2 is a schematic diagram of a point of sale redeemable purchasing value accumulation system incorporating an integrated cash register according to  
35 the present invention;

Fig. 3A is a schematic diagram of a point of sale redeemable purchasing value accumulation system according to the present invention including a plurality of point of sale terminals;

5 Fig. 3B is a schematic diagram of a point of sale redeemable purchasing value accumulation system according to the present invention including a plurality of point of sale terminals and a merchant host;

10 Fig. 4 is an illustration of an authorized point of sale transaction terminal according to the present invention;

Fig. 5 is an illustration of a consumer identification card according to the present invention;

15 Fig. 6 is an illustration of a form by which a consumer identification card may be issued at the point of sale according to the present invention;

Fig. 7 is a schematic diagram of a dual terminal point of sale redeemable purchasing value accumulation system according to the present invention;

20 Figs. 8A and 8B are illustrations of transaction records printed in accordance with the present invention;

Fig. 9 is a schematic block diagram of a purchasing value banking system according to the present invention;

25 Fig. 10 is an illustration of an authorized point of sale transaction terminal for a purchasing value banking system according to the present invention; and

Fig. 11 is a schematic block diagram of a conventional banking system.

30

#### DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 illustrates the components of a point of sale (POS) redeemable purchasing value accumulation system 10. The POS redeemable purchasing value accumulation system 10 includes an authorized point of sale transaction terminal 12 and a system host 14. The

35



system host 14 is located remote from the point of sale transaction terminal 12 and is typically a centralized system mainframe. Specifically, the system host 14 is not physically present at the point of sale. The overall operation of the transaction terminal 12 is controlled by the terminal controller 16. The overall operation of the system host 14 is controlled by the host controller 18. The terminal controller 16 and the host controller 18 are most commonly digital central processing units (CPU). The terminal controller 16 is coupled to and in communication with an external transaction record printer 24. Additionally, the terminal controller 16 is in communication with a terminal display 22, a consumer data recording member 26, a transaction terminal identifier 28, a transaction data recording member 30, a redemption value recording member 32, and a transaction terminal data input/output port 34 via data, address, and control buses, represented generally by the bus lines 20. The terminal controller 16, terminal display 22, transaction record printer 24, consumer data recording member 26, transaction terminal identifier 28, transaction data recording member 30, redemption value recording member 32, and transaction terminal data input/output port 34 function according to the operating program resident in a memory (not shown) associated with the terminal controller 16. The characteristics of the operating program are illustrated below in the description of the manner of operation of the POS redeemable purchasing value accumulation system 10.

The terminal display 22 is a visual display capable of displaying transaction data and may be any suitable display device, including an LCD display or a CRT display. The transaction record printer 24 is preferably a compact printer for providing a printed

record of a transaction or a batch of transactions and preferably provides simultaneous multiple copies of the printed transaction record, e.g., a top copy for the merchant and a bottom copy for the customer. It is contemplated by the present invention that the transaction record printer 24 can be an external printer coupled to the terminal 12 or a printer integrated with the body of the terminal 12.

The consumer data recording member 26, a specific example of which is described in detail below with respect to Fig. 4, provides a means by which a specific consumer identifier and a redeemable purchase value account are designated, selected, or identified at the transaction terminal 12. The redeemable purchase value account balance corresponds to a monetary amount which may be used towards the purchase of goods or services at any one of a plurality of authorized merchants. The transaction data recording member 30, an example of which is also described in detail below with respect to Fig. 4, provides a means by which a specific transaction value and other transaction data is selected or recorded at the transaction terminal 12 and input to the terminal controller 16. Similarly, the redemption value recording member 32, an example of which is described in detail below with respect to Fig. 4, provides a means by which a specific redemption value is selected or recorded at the transaction terminal 12 and input to the terminal controller 16. The transaction terminal identifier 28 is a device, e.g. an electronic memory, which stores a signal indicative of the identity of a particular authorized transaction terminal 12.

Information indicative of the designated specific consumer identifier and redeemable purchase value account, the specific transaction value and other transaction data, the specific redemption value, and the

transaction terminal identification signal are sent to, and/or accessible to, the system host 14 via the transaction terminal data input/output port 34. In this manner the point of sale transaction terminal 12 is

5 operative to display and print transaction data, detect and transmit a consumer identifier, produce and transmit a transaction terminal identification signal, record and transmit a transaction value, record and transmit a redemption value, and communicate with the host

10 controller 18 located remote from the point of sale transaction terminal 12 so as to receive transaction data including a transaction funding value and an account balance in a redeemable purchase value account corresponding to the consumer identifier.

15 The host controller 18 is in communication with a system host data input/output port 36, and a host memory 38 via data, address, and control buses, represented generally by the host bus lines 40. The host controller 18, the host data input/output port 36, and the host

20 memory 38 function according to the operating program resident in a memory (not shown) associated with the host controller 18. The characteristics of the operating program are illustrated below in the description of the manner of operation of the POS

25 redeemable purchasing value accumulation system 10. The host memory 38 includes transaction funding rate storage 42, redeemable purchase value account balance storage 44, transaction data storage 46, and consumer survey data storage 48.

30 In a preferred manner of operating the POS redeemable purchasing value accumulation system 10, when a consumer is present at the point of sale, or is in communication with the point of sale, for the purpose of executing an expenditure transaction for goods or

35 services, a sequence of steps is completed in order to

accumulate a purchasing value amount as an account balance in a redeemable purchase value account reserved for the consumer. First, the consumer indicates a mode of payment, i.e., credit, debit, cash, or check, and the merchant processes the payment at the point of sale and records the mode of payment via the transaction data recording member 30. Next, data specific to the consumer is recorded at the consumer data recording member 26 and the expenditure amount is entered via the transaction data recording member 30. The data so recorded is then sent to the system host 14 for processing. The system host 14, according to data stored in the host memory 38, is operative to: (i) calculate a transaction funding value based upon a funding rate stored in the host memory 38 and based upon the transaction value input at the authorized point of sale transaction terminal 12; (ii) increase the account balance in the consumer's redeemable purchase value account as designated by the consumer data recording member 26 based upon the calculated transaction funding value; and (iii) send transaction data and redeemable purchase value account balance data to the authorized point of sale transaction terminal. The transaction terminal controller 16 subsequently effects printing of a record, see Fig. 8A, via the record printer 24, indicating data which may include the merchant name, the date and time of the transaction, the consumer's redeemable purchase value account number, a card and transaction type, the terminal identification number, an authorization code, a transaction record number, the expenditure or purchase amount, the transaction funding value, and the current redeemable purchase value account balance.

It is contemplated by the present invention that a tip amount may also be entered following the purchase

amount entry. Further, it is contemplated by the present invention that, following the purchase amount entry a clerk or server identification number may be entered via the transaction data recording member 30.

5 Further, in a preferred manner of operating the POS redeemable purchasing value accumulation system 10, a consumer may execute a redemption transaction at the point of sale by using a portion of the consumer's redeemable purchase value account balance as partial or  
10 full payment for goods or services provided by the merchant. To execute the redemption, a redemption transaction is selected at the transaction terminal 12, a redemption amount is entered via the redemption value recording member 32 after the above described entry of  
15 the purchase amount. If a redemption amount is entered, the transaction value, or net expenditure value, is the difference between a total cost or expenditure value for the goods or services and the redemption value. Further, the system host 14, according to data stored in  
20 the host memory 38, is operative to decrease the account balance in the redeemable purchase value account based upon the redemption value input at the authorized point of sale transaction terminal 12. The transaction terminal controller 16 subsequently effects printing of  
25 a record, see Fig. 8B, via the record printer 24, which, in addition to the data illustrated in Fig. 8A, indicates the total expenditure value, the redemption value, the transaction value, and the current redeemable purchase value account balance reflecting the most  
30 recent transaction funding and redemption values.

A consumer may execute a return transaction at the point of sale because the host controller is further operative to decrease the account balance in the redeemable purchase value account based upon a  
35 transaction cancellation or a merchandise return. In

the event a return transaction results in a negative redeemable account balance, the system is further operative to charge the consumer's system funding account, if one is held by the consumer, accordingly.

5        A redemption blocked consumer identifier may be selected according to the present invention because the host controller is operative to block input of a redemption value when a redemption blocked consumer identifier is detected by the consumer data recording  
10 member 26. Additionally, the host controller is operative to activate and inactivate a redemption block for a specific consumer identifier.

Access to consumer redeemable purchase value accounts is limited to transactions including an  
15 expenditure or return transaction processed or executed at a point of sale transaction terminal in authorized communication with the host controller. In this manner, redemptions and credits remain within the redeemable purchasing value accumulation system. Authorized  
20 consumers, authorized merchants, and authorized terminals are identified as such in the host memory 38. The host memory 38 may be continuously reprogrammed to incorporate additional authorized consumers, merchants, and terminals.

25        Fig. 2 illustrates an embodiment of the present invention wherein the POS cash register 50 is integrated with the authorized point of sale transaction terminal 12 such that all data entries input to the cash register 50 are processed by the terminal controller 16. In this  
30 manner, it is not necessary for the clerk at the point of sale to first process the payment at an stand alone cash register and then enter the expenditure amount and the payment mode at the transaction terminal 12 because the expenditure amount and the mode of payment are  
35 available for processing by the terminal controller 16

upon entry at the integrated cash register 50. If an integrated cash register 50 is not used then it is preferable for a clerk at the point of sale to mark the cash register receipt to indicate that a transaction was processed or executed at the transaction terminal 12 in connection with the purchase or that an increase in the consumer's redeemable purchase value account balance has been effected. For example, the cash register receipt may be marked with an embossing stamp, an imprinting stamp, or a writing implement.

Fig. 7 illustrates an embodiment of the present invention wherein a second authorized point of sale transaction terminal 12' is provided in addition to the authorized point of sale transaction terminal 12, described above with reference to Fig. 1. The second terminal 12' includes a terminal controller 16', a terminal display 22', a transaction record printer 24', a consumer data recording member 26', a transaction terminal identifier 28', an absolute funding value recording member 8, and a transaction terminal data input/output port 34'. The second terminal 12' is provided so as to permit absolute redeemable purchasing value accumulation in a consumer's account, as opposed to accumulation which is merely a function of a predetermined funding rate stored in the host memory 38. Specifically, where the second terminal 12' is included in the redeemable purchasing value accumulation system 10, a value indicated on an authorized system coupon, a value indicated on an authorized system rebate, or a value indicated on an authorized system absolute funding form may be directly credited to the consumer's account by the clerk or server at the point of sale.

The POS redeemable purchasing value accumulation systems 10 illustrated in Figs. 3A and 3B incorporate a plurality of authorized point of sale transaction

terminals 12. At least one authorized transaction terminal 12 is located at the point of sale of each merchant of an identified set of authorized merchants. The set of authorized merchants and all authorized consumers are identified by the host memory 38. In the POS redeemable purchasing value accumulation system 10 illustrated in Fig. 3A, each of the plurality of transaction terminals 12 is in communication with the system host 14 and the host controller 18. In the POS redeemable purchasing value accumulation system 10 illustrated in Fig. 3B, each of the plurality of transaction terminals 12 is in communication with a merchant host 15 which, in turn, is in communication with the system host 14 and the host controller 18.

When a plurality of authorized transaction terminals are included in the POS redeemable purchasing value accumulation system 10, the host controller 18 is operative to: (i) calculate a terminal specific transaction funding value based upon one of a plurality of host programmed funding rates stored in the host memory 38 and based upon a terminal transaction value input at a selected authorized point of sale transaction terminal 12; (ii) increase an account balance in a redeemable purchase value account designated by the consumer data recording member 26 associated with the selected authorized point of sale transaction terminal 12 based upon the terminal specific transaction funding value; (iii) decrease the account balance in the designated redeemable purchase value account based upon a redemption value input at the selected authorized point of sale transaction terminal 12; and (iv) send terminal specific transaction data and redeemable purchase value account balance data to the selected authorized point of sale transaction terminal 12.



Fig. 4 illustrates the authorized point of sale transaction terminal 12 including a plurality of function keys 52 forming a keyboard or keypad on the face of the transaction terminal 12 and a compact digital display 54.

The payment mode is selected and recorded by depressing one of the payment mode keys. The "CREDIT" and "DEBIT" keys are selected according to whether payment is to be processed through a credit or debit card. The "PRIV" key is selected if payment is to be processed through a private label credit card. The "MERIT" key is selected if payment is to be cash or check. The "REPRINT" key initiates reprinting of the transaction record. The "RECALL" key recalls the last response. The "MGR" initiates entry into a manager mode where appropriate passwords, the terminal identifier, and other data may be programmed. The "SETUP" key initiates entry into a terminal setup mode which is described below. The numerical keys facilitate entry of numerical data, e.g., transaction value, redemption value, etc. The four return keys are used to initiate merchandise returns corresponding to the indicated payment modes. The "Clear" key aborts a process or clears an entry. The two offline keys initiate offline payment. The "TABS" key initiates opening, closing, or deletion of customer tabs. The "VOID" key voids a transaction. The "MERIT REDEMPTION" key initiates a redemption transaction. The "Alpha" key initiates selection of an alpha symbol. The "\*" key and the "#" key initiate left and right scrolling. The "TIP" key initiates tip entry. The "FUNC/ENTER" key initiates selection of a function and entry of data.

The authorized point of sale transaction terminal 12 illustrated in Fig. 4 also includes a card reading slot 56 for reading a consumer identifier stored, either

magnetically, optically, or otherwise, on a consumer identification card 60. Fig. 5 is an illustration of the face of a consumer identification card 60 according to the present invention. In addition to the optically or magnetically stored consumer identifier (not shown), the consumer identification card includes a visually recognizable consumer name 62, an identification/account number 64, and a "member since" date 66. The identification card 60 may also include an expiration date (not shown).

After the transaction terminal reads the consumer identifier or after the consumer identifier is manually recorded using the numerical function keys, the transaction value is recorded by the transaction data recording member 30 upon entry of a purchase and/or redemption amount using the numerical function keys. To enter or record a redemption amount at the redemption value recording member 32 a redemption transaction is initiated by depressing the "MERIT REDEMPTION" key and, subsequently, the redemption value is entered using the numerical function keys.

The terminal controller 16 may be set up to initiate a card number and expiration date verification sequence when the identification card 60 is passed through the card reading slot 56. Further, the terminal controller 16 is responsive to a consumer identification card 60 which is operative as one of a credit card, a debit card, a cash/check card, or combinations thereof. Further, the consumer identification card 60 may carry a plurality of consumer identifiers and either the host controller or the transaction terminal is operative to prompt a consumer to select one of the plurality of consumer identifiers at the point of sale. Additionally, the consumer identification card 60 is capable of carrying a consumer identifier representing a

redeemable purchase value account which is pooled among a plurality of consumers. It is also contemplated by the present invention that the consumer identification card 60 may be operative as a pre-paid redeemable  
5 purchasing value card wherein the account balance in a corresponding redeemable purchase value account corresponds to a pre-paid redeemable purchasing value of the pre-paid redeemable purchasing value card.

The POS redeemable purchasing value accumulation  
10 system 10 also provides a convenient means by which a consumer identification card may be instantly issued at the point of sale to establish a consumer redeemable purchase value account for a participating consumer. A consumer located at the point of sale and wishing to  
15 obtain a consumer identification card 60 in order to begin accumulating an account balance immediately, fills out the information on an instant issue form 70, see Fig. 6. The point of sale merchant then transfers the information to the host, records consumer identification  
20 indicia on a detachable portion 72 of the instant issue form, and detaches an instant issue card 74 from the form 70 by tearing or cutting along perforation 76. A permanent consumer identification card 60 is  
subsequently sent to the consumer through the mail, or  
25 otherwise. The instant issue form also includes a consumer survey section 78 and a membership profile section 80.

In another embodiment of the present invention the consumer identifier is stored on a system credit card  
30 and the host controller 18 is further operative to calculate an additional transaction funding value based upon an additional funding rate stored in the host memory and based upon a payment amount processed through the system credit card. In this manner, the consumer  
35 receives a first transaction funding value based upon an

expenditure at the point of sale and a second transaction funding value based upon the consumer's use of the system credit card. It is contemplated by the present invention that the first and second funding values may accumulate in a single redeemable purchase value account. However, it may be preferable to place certain restrictions on the purchasing value balance resulting from the second funding value to increase system versatility. For example, a minimum spending amount may be required before the second funding value is accumulated.

The POS redeemable purchasing value accumulation system 10 of the present invention is also capable of enabling generation of a series of transaction related reports. For example, transaction information is stored in the transaction data storage 46 of the host memory 38 to enable generation of periodic point of sale transaction reports. Each point of sale transaction report, detailing each transaction processed or executed at the particular point of sale terminal, is preferably sent to a manager associated with the point of sale terminal.

Consumer specific survey information, either gathered from the consumer survey section 78 of the instant issue form 70, or otherwise, is stored in the consumer survey data storage 48. The consumer specific data present in the consumer survey data storage 48 is correlated with the transaction information stored in the transaction data storage 46 to enable generation of periodic profile reports detailing the correlated consumer specific survey and transaction data. The periodic profile reports comprise content selected from the group consisting of: a daily transaction recap, a periodic transaction recap summary, a periodic consumer retention analysis, a periodic consumer activity

analysis, a periodic consumer ranking analysis, a periodic most active zip code analysis, a periodic consumer lifestyle analysis, a periodic activity usage analysis, a periodic consumer activity report, and combinations thereof.

According to the present invention, the host memory 38 stores consumer specific transaction information so as to enable generation of periodic consumer statements or to enable selection of a set of target consumers based upon a correlation of the consumer specific transaction information and the consumer specific survey information. The set of target consumers comprises a target set selected from the group consisting of: consumers who have been active with a specific merchant, consumers who have been inactive with a specific merchant, consumers present in a specific geographical area or zip code area, consumers generating activity or sales greater than a target amount, consumers generating activity or sales less than a target amount, consumers indicative of specific consumer demographics, consumers indicative of a specific gender, consumers indicative of a specific age, and combinations and permutations thereof. The host memory 38 further stores clerk specific transaction information in the transaction data storage 46 so as to enable generation of periodic clerk activity reports.

According to one embodiment of the present invention, the purchasing value accumulation system 10 operates as a consumer purchase tracking system. Specifically, the transaction terminal 12 is programmed to send, and the system host 14 is programmed to receive and store, transaction specific data indicative of the identity of the merchant at which the transaction is processed or executed, the identity of the consumer executing the purchase transaction, and a specific

product or service identifier, e.g. a UPC code, corresponding to each product or service purchased. To facilitate recognition of the specific product or service identifiers, the system host 14 may include a storage device within the host memory 38 dedicated to storing specific product or service identifiers and the corresponding product or service names. In this manner, information generated by the system host 14 and provided to interested parties can include the specific product or service identifiers and the corresponding product or service names. Alternatively, it is contemplated by the present invention that product or service names need not be stored on the system host 14 if a particular interested party has the ability to translate the specific product or service identifier into the corresponding product or service name.

The information generated by the system host 14 as a result of the above-described consumer purchase tracking operation may comprise: (i) a correlation of specific product purchases to point-of-sale purchase locations, individual consumers, or specific retailers; (ii) a correlation of specific consumer to specific retailers or specific point of sale locations; and (iii) combinations and permutations thereof. The information so generated may be made exclusively available to merchants or retailers utilizing the purchasing value accumulation system 10 or made be made available to any interested parties.

Funding rates used in the funding value calculation are stored in the funding rate storage 42 of the host memory 38. The funding rate storage structure enables selection of transaction specific funding rates. For example, a funding rate for computing the resulting transaction funding value may be a function of the transaction value, accumulated transaction values

attributable to a single consumer identifier, or a marketing code assigned to a single consumer identifier. Marketing codes may be established according to consumer specific survey information gathered through use of the instant issue form 70 or otherwise and may indicate a ranking of consumers relative to perceived importance to a merchant. Each authorized consumer is preferably identifiable by one or more marketing codes. The host memory 38 may be continuously reprogrammed to

10 incorporate changed funding rates and marketing codes.

The authorized point of sale transaction terminal is operative to suspend a set of normal mode operations and enter a setup mode wherein are performed setup functions selected from the group consisting of: host setup, key setup, printer setup, auto close setup, training mode setup, date and time setup, account ranges setup, dial type setup, fraud control setup, debit cash-back setup, clerk identification setup, server identification setup, tip aid setup, and combinations thereof. Further, the POS redeemable purchasing value accumulation system 10 is operative to require input of a transaction password prior to performing a password protected transaction. Additionally, the POS redeemable purchasing value accumulation system 10 is operative to permit an operation selected from the group consisting of: providing a recommended tip amount based upon the transaction value, recording a tip amount in addition to the transaction value, opening a customer tab, closing a customer tab, deleting a customer tab, reprinting a receipt, recalling a response, performing an authorized point of sale transaction terminal memory available check, and combinations thereof. Also, the POS redeemable purchasing value accumulation system 10 is operative to permit an operation selected from the group consisting of: displaying, printing, transmitting, and

deleting a batch of transactions stored in the authorized point of sale transaction terminal.

Referring now to Figs. 9 and 10, a purchasing value banking system (PVBS) 100 is illustrated. The PVBS 100 includes a PVBS host 102, a bank host 104, and a merchant system 105. The merchant system 105 typically includes a merchant host 106, at least one merchant terminal 116, and a merchant deposit drawer 120, but may merely include a single merchant terminal 116 in direct communication with the PVBS host 102. Each host 102, 104, 106 is controlled by a respective host controller (not shown), as described above with reference to the system host 14. Further, each host 102, 104, 106 includes data storage devices (not shown), e.g. digital memories, as described above with reference to the system host 14.

The PVBS host 102 is in communication with the merchant system 105 and the bank host 104. The PVBS host 102 is operative to process purchase value account information as a function of an expenditure transaction executed at the merchant terminal 116. It is contemplated by the present invention that a purchase value account, and the information processed in relation to the purchase value account, comprise any of a variety of account types and associated information related to purchasing value, e.g., points, cash, merchandise, services, etc., accumulated or earned as a function of an expenditure transaction executed at a merchant terminal.

In one embodiment of the present invention, the PVBS host 102 and the accompanying purchase value account data storage device 108 are similar to the system host 14 and the redeemable purchase value account balance storage 44 described herein with reference to Figs. 1-8 in that they incorporate any one or all of the



features, components, and functions present in the system host 14. For the purposes of illustration, the purchase value account data storage device 108 is illustrated schematically in Fig. 9 and represents

5 collectively the variety of storage devices necessary to perform the operations of the system host 14 and any further storage devices associated with the operation of the PVBS host 102, as described herein. The PVBS host 102 is additionally operative to communicate with the  
10 bank host 104 and includes peripheral devices 110. The nature of the communication between the bank host 104 and the PVBS host 102, as well as the nature of the peripheral devices 110, are described in detail herein with further reference to Fig. 9.

15 The bank host 104 is substantially similar to those used conventionally for handling communications between a bank and another remote data processing system, such as a credit card or bank card data processing system or a funds transfer system. The bank host 104 differs from  
20 the conventional bank host communication systems in that it is further operative to communicate directly with the PVBS host 102 and transmit an authorization number generated at an authorization number source 112 to the  
2 PVBS host 102. The bank host 104 incorporates a bank  
25 account data storage device 114 which stores data related to bank accounts held with the bank.

The merchant host 106, which may be integral with the merchant terminal 116, is operative to communicate with the PVBS host 102. As will be appreciated, the  
30 present invention contemplates a plurality of merchant terminals 116 being provided at various merchant locations and all communicating with the merchant host 106. Each merchant terminal 116 incorporates any one or all of the features, components, and functions present  
35 in the point of sale transaction terminal 12, described

in detail herein with reference to Figs. 1-4 and 7. The merchant terminals 116 are further operative to enable performance of a complete set of banking operations, via the PVBS host 102 and the bank host 104, upon  
5 recognition of a valid uni card 118. The merchant host 106 is also operative to debit and credit the merchant deposit drawer 120, indicate an amount to be debited from or credited to the merchant deposit drawer 120, or both.

10 The uni card 118 is a card similar to the consumer identification card 60, shown in Fig. 5, in that it includes at least one purchase value account number 122 embedded or encoded therein. The purchase value account number 122 corresponds to an account held in the  
15 purchase value account data storage device 108. Further, the uni card 118 includes at least one bank account number 124 embedded or encoded therein, wherein the bank account number 124 corresponds to an account held in the bank account data storage device 114. It is  
20 contemplated by the present invention that an account number may be embedded or encoded on the uni card 118 in the form of a bar code, embossed numbers, a magnetic encoding, or any other available encoding means which permits machine reading or visual reading of the number.

25 The peripheral devices 110 include automated or non-automated devices and any service structures which enhance the operational characteristics of the PVBS host 102. For example, the peripheral devices 110 may enable access to a PVBS host web page or other automated  
30 information interface, a purchase value personal financial information source, an automated audio response unit, or an automated or non-automated call center.

The purchasing value banking system (PVBS) 100 is  
35 operative to perform the functions of the purchasing

value accumulation system 10 described above with reference to Figs. 1-8. Additionally, the PVBS 100 is operative to perform any one of a complete set of banking operations upon recognition of a valid uni card 118 at the merchant terminal 116. Specifically, when a consumer is present at the point of sale and presents a valid uni card 118, the purchase value account number 122 and the bank account number 124 embedded or encoded therein are read, identified, or designated. As a result a purchasing value is accumulated based on an expenditure transaction conducted at the point of sale. Further, because the valid card has been presented and the bank account number 124 has been identified, the consumer may also utilize the merchant terminal 116 to conduct any one of a complete set of banking operations with the bank host 104. It is contemplated by the present invention that the PVBS 100 may be structured such that a banking operation is permitted only where a purchase transaction has been initiated at the point of sale. Conversely, it is also contemplated by the present invention that the PVBS 100 may be structured such that a banking operation is permitted regardless of whether an expenditure transaction is performed at the point of sale.

In the illustrated embodiment, a valid uni card 118 is recognized by passing the user's system card through a card reading slot 130 on the merchant terminal 116 and requiring input of a personal security code or password at the merchant terminal 116. It is contemplated by the present invention that a variety of automated and non-automated schemes may be employed to recognize a valid uni card 118. It is further contemplated by the present invention that entry of a personal security code during the valid card recognition sequence is not a required feature of the invention. Rather, entry of the security

code may be required only where one of the banking operations is to be performed, or may not be required at all.

Referring again to Fig. 9, the manner in which one of the banking operations is performed will be described in detail. Upon recognition of a valid uni card 118, the merchant terminal 116, via terminal display 132, prompts the consumer to specify whether a specific banking operation is to be performed. Alternatively, the consumer may be required to indicate, absent a terminal prompt, whether a banking operation is to be performed. If a banking operation is to be performed, the consumer selects a specific banking operation utilizing a banking operation interface comprising keys F1, F2, F3, F4 in a manner substantially similar to the procedures executed at conventional automatic teller machines. The PVBS host 102 then transfers the necessary information corresponding to the selected banking operation from the merchant system 105 to the bank host 104 and, if predetermined security clearance procedures for the selected banking operation are satisfied, a banking operation authorization signal and banking operation data associated with the selected banking operation is transferred from the bank host 104 to the merchant system 105 via the PVBS host 102.

As an illustrative example, where the consumer wishes to process a check cashing transaction via the merchant terminal 116, the transaction data is transmitted from the merchant host 106 to the bank host 104 via the PVBS host 102. In response to the request for cashing a check at the point of sale, the bank host 104 initiates a predetermined security clearance procedure according to usual banking industry business practices. If the security clearance procedure indicates that the check cashing transaction is

authorized, the bank host 104 generates an authorization number at an authorization number source 112 and transmits the authorization number to the merchant terminal 116 via the PVBS host 102. The authorization number is subsequently matched with the check to be cashed to facilitate periodic settlement between the merchant and the bank. In a preferred embodiment of the present invention, the authorization number, when matched with the check to be cashed, creates a bank guaranteed check and effectively eliminates any risk the merchant would have assumed by cashing a non-guaranteed check. It is contemplated by the present invention that the authorization number may be matched with the check to be cashed in an automated fashion, for example, through the use of a direct printing or encoding method whereby the authorization number is linked to the check to be cashed, or in a non-automated fashion, for example, where an attendant at the point of sale writes the authorization number on the check to be cashed.

Communications substantially identical to those described in the check cashing procedure are executed where the consumer wishes to process a withdrawal, deposit, or other banking transaction. It is contemplated by the present invention that the complete set of banking transactions includes but is not limited to a deposit, a withdrawal, a funds transfer, a loan payment, a utility payment, a statement request, a request for a printed transaction history, a personal identification number change transaction, a credit card cash advance transaction, a postage stamp purchase, a traveler's check purchase, any other transaction performed at a conventional automatic teller machine, and combinations thereof.

It is contemplated by the present invention that transaction data corresponding to any of the banking

operations may be sent directly to the bank host 104 from the merchant host 106, particularly where no expenditure transaction has been conducted at the point of sale. Alternatively, the PVBS host 102 may provide  
5 communication between the bank host 104 and the merchant host 106, providing the opportunity for an assessment of a service charge for such communications.

The merchant terminal 116 illustrated in Fig. 10 is substantially the same as the transaction terminal 12  
10 illustrated in Fig. 4, with the exceptions that the merchant terminal 116 of Fig. 10 includes the banking operation interface keys F1, F2, F3, F4 and a conventional "CANCEL" key for enabling the specific banking operations described above, and a "BONUS" key  
15 for enabling special promotional operations linked with specific consumers, merchants, retailers, products, purchases, or services. For example, where a predetermined type of expenditure transaction occurs and is recognized at the point of sale, the "BONUS" key is  
20 depressed in succession with a set of numerical keys to create a bonus code. The bonus code is transmitted to the PVBS host 102 to indicate a particular type of bonus transaction. The PVBS host 102 executes a predetermined promotional operation in response to the bonus code.

25 For example, the steps of a bonus transaction may be as follows: (i) consumer purchases a particular product, e.g. Hawaiian Punch®; (ii) point of sale attendant recognizes the purchase as one of a plurality of predetermined bonus transactions and depresses the  
30 "BONUS" key followed by the numerical keys "2-3-8"; (iii) the bonus code "2-3-8", which corresponds to any Hawaiian Punch® purchase, is transmitted to the PVBS host 102; and (iv) the PVBS host 102 matches the bonus code "2-3-8" with a predetermined promotional operation  
35 stored in its data storage device and executes the

predetermined promotional operation. It will also be appreciated that a merchant terminal that is integrated with a cash register and bar code scanner provides the opportunity for automated bonus transactions.

5       The predetermined promotional operation executed by the PVBS host 102 may comprise any of a variety of operations including: an immediate credit to the consumer's purchase value account; a transmission of a laudatory message recognizing the bonus transaction to  
10   the merchant terminal 116 and consumer; and any other appropriate promotional operation. Further, it is contemplated by the present invention that execution of the promotional operation may be delayed until a predetermined number of specific bonus transactions have  
15   been initiated by the consumer. According to one aspect of the present invention, the promotional operation is not executed until the particular consumer has initiated particular bonus transactions exceeding a predetermined monetary value over a predetermined period of time.  
20   Printed messages monitoring the consumer's progress towards achieving execution of the promotional operation may be transmitted to the merchant host 106 and printed on the consumer's receipt.

      It is contemplated by the present invention that  
25   the "BONUS" key may be eliminated by a fully automated process whereby the PVBS host 102 is programmed to automatically recognize a specific transaction as a bonus transaction. The bonus operation would then be executed in the manner described above. Further, a  
30   message indicating that a bonus transaction has occurred and summarizing the bonus transaction can be transmitted to the merchant host 106 and printed on the transaction receipt.

      According to another aspect of the present  
35   invention, the PVBS host 102 is programmed to transmit a

free form text message to the merchant host 106 and the merchant terminal 116 is operative to reproduce the free form text message on the transaction receipt. The PVBS host 102 is programmed such that the particular free  
5 form text message transmitted to the merchant host 106 is either a standard message printed for every transaction or a message which is selected and generated as a function of the characteristics of the specific transaction, the specific merchant, or the specific  
10 consumer.

Having described the invention in detail and by reference to preferred embodiments thereof, it will be apparent that modifications and variations are possible without departing from the scope of the invention  
15 defined in the appended claims.

What is claimed is:



## CLAIMS

1. A purchasing value banking system comprising:

(a) a merchant system incorporating a merchant terminal, said merchant terminal comprising

5 (i) a consumer data recording member operative to identify and transmit a purchase value account number and a bank account number, and

(ii) a banking operation interface;

10 (b) a bank host incorporating a bank account data storage device; and

(c) a purchasing value banking system host in communication with said merchant system and in communication with said bank host, said system host  
15 being operative to

(i) receive said purchase value account number and said bank account number

(ii) process purchase value account information as a function of an expenditure transaction executed at said merchant  
20 terminal,

(iii) transfer banking operation information and said bank account number from said merchant system to said bank host in  
25 response to a banking operation selected at said banking operation interface, and

(iv) transfer a banking operation authorization signal from said bank host to said merchant system.

30

2. A purchasing value banking system as claimed in claim 1 wherein said banking operation interface comprises a keypad.

3. A purchasing value banking system as claimed in claim 1 wherein said banking operation interface is operative to permit performance of a banking operation selected from the group consisting of: a deposit, a withdrawal, a funds transfer, a loan payment, a utility payment, a statement request, a request for a printed transaction history, a personal identification number change transaction, a credit card cash advance transaction, a postage stamp purchase, a traveler's check purchase, any other transaction performed at a conventional automatic teller machine, and combinations thereof.
4. A purchasing value banking system as claimed in claim 1 wherein said bank account number is stored in said bank account data storage device, wherein said bank account number corresponds to a specific bank account, and wherein said banking operation interface is operative to enable deposit and withdrawal of funds from said specific bank account via said purchasing value banking system host and said bank host.
5. A purchasing value banking system as claimed in claim 1 wherein said selected banking operation comprises a check cashing transaction and wherein said authorization signal corresponds to an authorization number.
6. A purchasing value banking system as claimed in claim 5 wherein said merchant terminal is operative to reproduce said authorization number on a check.

7. A purchasing value banking system as claimed in claim 1 wherein said merchant system further incorporates a merchant host in communication with said merchant terminal and in communication with at least one additional merchant terminal.

8. A purchasing value banking system as claimed in claim 1 wherein said bank host further incorporates an authorization number source.

10

9. A purchasing value banking system as claimed in claim 1 wherein said purchasing value banking system host is further operative to transfer banking operation data from said bank host to said merchant system.

15

10. A purchasing value banking system as claimed in claim 1 wherein said purchasing value banking system host incorporates a purchase value account data storage device.

20

11. A purchasing value banking system as claimed in claim 1 wherein said purchasing value banking system host includes a device enabling access to an automated information interface.

25

12. A purchasing value banking system as claimed in claim 1 wherein said purchasing value banking system host includes a device enabling access to personal financial information.

30

13. A purchasing value banking system as claimed in claim 1 wherein said purchasing value banking system host includes an automated audio response unit.

14. A purchasing value banking system as claimed in claim 1 wherein said purchasing value banking system host includes a call center.

5 15. A purchasing value banking system as claimed in claim 1 wherein said purchase value account information corresponds to a value accumulated as a function of an expenditure transaction executed at a merchant terminal.

10 16. A method of executing a banking operation comprising the steps of:

identifying a purchase value account number and a bank account number at a merchant terminal;

15 transmitting said purchase value account number and said bank account number to a purchasing value banking system host in communication with said merchant terminal;

20 processing purchase value account information at said purchasing value banking system host as a function of an expenditure transaction executed at said merchant terminal;

selecting at least one banking operation at a banking operation interface incorporated in said merchant terminal;

25 transferring information corresponding to said selected banking operation from said merchant terminal to said bank host; and,

transferring a banking operation authorization signal from said bank host to said merchant system.

30

17. A method of executing a banking operation as claimed in claim 16 wherein banking operation data associated with said selected banking operation is transferred from said bank host to said merchant system.

35

18. A method of executing a banking operation as claimed in claim 16 wherein said purchase value account number and said bank account number are encoded on a card and are identified by reading said account numbers  
5 at said merchant terminal.

19. A method of executing a banking operation as claimed in claim 16 wherein said processing step includes the step of accumulating a value as a function  
10 of said expenditure transaction.

20. A merchant terminal operative to:

identify a purchase value account number and a bank account number;

15 transmit said purchase value account number and said bank account number to a purchasing value banking system host in communication with said merchant terminal;

20 transmit expenditure transaction data to said purchasing value banking system host, wherein said expenditure transaction data corresponds to an expenditure transaction executed at said merchant terminal;

25 permit selection of at least one banking operation at a banking operation interface incorporated in said merchant terminal;

transmit information corresponding to a selected banking operation to said purchasing value banking system host; and

30 receive a banking operation authorization signal from said bank host.

21. A merchant terminal as claimed in claim 20 wherein said merchant terminal is further operative to initiate selective deposit and withdrawal of funds from a specific bank account.

5

22. A point of sale redeemable purchasing value accumulation system comprising:

an authorized point of sale transaction terminal including a terminal display, a transaction record  
10 printer, a consumer data recording member responsive to a consumer identifier, a transaction terminal identifier, a transaction value recording member, a redemption value recording member, and a transaction terminal data input/output port;

15

a host memory located remote from said authorized point of sale transaction terminal; and

a host controller located remote from and in communication with said authorized point of sale transaction terminal and operative to

20

calculate a transaction credit value based upon a credit rate stored in said host memory and based upon a transaction value input at said authorized point of sale transaction terminal,

25

increase an account balance in a redeemable account designated by said consumer data recording member based upon said transaction credit value,

30

decrease said account balance in said redeemable account based upon a redemption value input at said authorized point of sale transaction terminal, and

35

send transaction data and redeemable account balance data to said authorized point of sale transaction terminal.

23. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein a cash register is integrated with said authorized point of sale transaction terminal.

5

24. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said host controller communicates with said authorized point of sale transaction terminal via a merchant host, and  
10 wherein said merchant host is in communication with a plurality of authorized point of sale transaction terminals.

15

25. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said consumer data recording member comprises a card reader and wherein said consumer identifier is stored on a consumer identification card.

20

26. A point of sale redeemable purchasing value accumulation system as claimed in claim 25 wherein said point of sale redeemable purchasing value accumulation system is operative to initiate a card number and expiration date verification sequence.

25

27. A point of sale redeemable purchasing value accumulation system as claimed in claim 25 wherein said consumer identification card is operative as one of a credit card, a debit card, a cash/check card, or  
30 combinations thereof.

28. A point of sale redeemable purchasing value accumulation system as claimed in claim 25 wherein said consumer identification card carries a plurality of consumer identifiers and wherein one of said host  
5 controller and said transaction terminal is operative to prompt a consumer to select one of said plurality of consumer identifiers.

29. A point of sale redeemable purchasing value  
10 accumulation system as claimed in claim 25 wherein said consumer identification card carries a consumer identifier representing a pooled redeemable account.

30. A point of sale redeemable purchasing value  
15 accumulation system as claimed in claim 27 further comprising a cash register integrated with said authorized point of sale transaction terminal wherein said cash register and said transaction terminal are operative to read said consumer identifier and conduct a  
20 credit, debit, and/or cash/check card transaction.

31. A point of sale redeemable purchasing value accumulation system as claimed in claim 25 wherein said consumer identification card is operative as a pre-paid  
25 redeemable purchasing value card and wherein said account balance in said redeemable account corresponds to a pre-paid redeemable purchasing value of said pre-paid redeemable purchasing value card.

30 32. A point of sale redeemable purchasing value accumulation system as claimed in claim 25 wherein said consumer identification card comprises an instant issue card issued at said authorized point of sale transaction terminal.



33. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said consumer identifier is stored on a system credit card and wherein said host controller is further operative to  
5 calculate an additional transaction credit value based upon an additional credit rate stored in said host memory and based upon a payment amount processed through said system credit card.

10 34. A point of sale redeemable purchasing value accumulation system as claimed in claim 33 wherein accumulation of said additional transaction credit value is limited to a predetermined minimum expenditure.

15 35. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said host memory stores transaction information so as to enable generation of periodic point of sale transaction reports.

20 36. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said host memory stores consumer specific transaction information and consumer specific survey information so  
25 as to enable generation of periodic profile reports.

37. A point of sale redeemable purchasing value accumulation system as claimed in claim 36 wherein said periodic profile reports comprise content selected from the group consisting of a daily transaction recap, a  
5 periodic transaction recap summary, a periodic consumer retention analysis, a periodic consumer activity analysis, a periodic consumer ranking analysis, a periodic most active zip code analysis, a periodic consumer lifestyle analysis, a periodic activity usage  
10 analysis, a periodic consumer activity report, and combinations thereof.

38. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said  
15 host memory stores consumer specific transaction information so as to enable generation of periodic consumer statements.

39. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said  
20 host memory stores consumer specific transaction information and consumer specific survey information so as to enable selection of a set of target consumers.

40. A point of sale redeemable purchasing value accumulation system as claimed in claim 39 wherein said set of target consumers comprises a target set selected from the group consisting of consumers who have been  
5 active with a specific merchant, consumers who have been inactive with a specific merchant, consumers present in a specific geographical area or zip code area, consumers generating activity or sales greater than a target amount, consumers generating activity or sales less than  
10 a target amount, consumers indicative of specific consumer demographics, consumers indicative of a specific gender, consumers indicative of a specific age, and combinations thereof.
- 15 41. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said host memory stores clerk specific transaction information so as to enable generation of periodic clerk activity reports.
- 20 42. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said credit rate stored in said host memory is a function of said transaction value.
- 25 43. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said credit rate stored in said host memory is a function of accumulated transaction values attributable to said  
30 consumer identifier.
44. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said credit rate stored in said host memory is a function of  
35 a marketing code assigned to said consumer identifier.

45. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said host controller is further operative to decrease said account balance in said redeemable account based upon a transaction cancellation or a merchandise return.

46. A point of sale redeemable purchasing value accumulation system as claimed in claim 45 wherein when said transaction cancellation or said merchandise return yields a negative account balance, said host controller is further operative to charge a consumer system credit account in an amount corresponding to the negative balance.

47. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said host controller is further operative to block input of said redemption value when a redemption blocked consumer identifier is detected by said consumer data recording member.

48. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said host controller is further operative to activate and inactivate a redemption block function wherein input of said redemption value is blocked when a specific consumer identifier is detected by said consumer data recording member.

49. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein access to said redeemable account is limited to transactions including an expenditure or return  
5 transaction processed at any one of a plurality of point of sale transaction terminals in communication with said host controller.

50. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein access to said account balance is limited to transactions including an expenditure or return  
10 transaction processed at any one of a plurality of point of sale transaction terminals in communication with said  
15 host controller.

51. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 further comprising a plurality of authorized point of sale  
20 transaction terminals in communication with said host controller wherein said host controller is operative to:  
calculate a terminal specific transaction credit value based upon one of a plurality of host programmed credit rates stored in said host memory and based upon a  
25 terminal transaction value input at a selected one of said plurality of authorized point of sale transaction terminals;

increase an account balance in a redeemable account designated by a consumer data recording member  
30 associated with said selected one of said plurality of authorized point of sale transaction terminals based upon said terminal specific transaction credit value;  
decrease said account balance in said designated redeemable account based upon a redemption value input

at said selected one of said plurality of authorized point of sale transaction terminals; and

send terminal specific transaction data and redeemable account balance data to said selected one of said plurality of authorized point of sale transaction terminals.

52. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said authorized point of sale transaction terminal is operative to suspend a set of normal mode operations and enter a setup mode wherein are performed setup functions selected from the group consisting of host setup, key setup, printer setup, auto close setup, training mode setup, date and time setup, account ranges setup, dial type setup, fraud control setup, debit cash-back setup, clerk identification setup, server identification setup, tip aid setup, and combinations thereof.

53. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said point of sale redeemable purchasing value accumulation system is operative to require input of a transaction password prior to performing a password protected transaction.

54. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said point of sale redeemable purchasing value accumulation system is operative to permit an operation selected from the group consisting of providing a recommended tip amount based upon said transaction value, recording a tip amount in addition to said transaction value, opening a customer tab, closing a customer tab, deleting a customer tab, reprinting a receipt, recalling a

response, performing an authorized point of sale transaction terminal memory available check, and combinations thereof.

5 55. A point of sale redeemable purchasing value accumulation system as claimed in claim 22 wherein said point of sale redeemable purchasing value accumulation  
10 system is operative to permit an operation selected from the group consisting of: displaying, printing, transmitting, and deleting a batch of transactions stored in said authorized point of sale transaction terminal.

15 56. A neutrally-branded, multi-merchant, frequent shopper system integrated with a consumer point of sale at a plurality of participating merchants and covering all forms of payment comprising:

a consumer redeemable account established for at least one participating consumer;

20 an authorized point of sale transaction terminal located at a selected participating merchant and including a total expenditure value recording member and a redemption value recording member, wherein said redemption value recording member is operative to record  
25 a redemption value;

a net expenditure value determining member responsive to said total expenditure value and said redemption value; and

30 a host controller located remote from and in communication with said authorized point of sale transaction terminal and operative to

determine a credit value associated with an expenditure transaction processed at said authorized point of sale transaction terminal,  
35 said credit value being a function of a credit

rate stored at a location remote from said selected participating merchant and a function of one of said net expenditure value or said total expenditure value;

5           increase said balance in said consumer redeemable account in accordance with said credit value;

          decrease said balance in said consumer redeemable account in accordance with said redemption value; and

10

          issue a transaction receipt indicating said total expenditure value, said redemption value, said net expenditure value, said credit value, and said balance.

15

57. A method of accumulating redeemable purchasing value based upon a point of sale transaction comprising the steps of:

          designating a redeemable account at an authorized point of sale transaction terminal;

20

          transmitting a designated redeemable account identifier and a transaction value input at said authorized point of sale transaction terminal to a host located remote from said authorized point of sale transaction terminal;

25

          calculating a transaction credit value based upon a credit rate stored in a host memory located remote from said authorized point of sale transaction terminal and based upon said transaction value input at said authorized point of sale transaction terminal;

30

          increasing an account balance in said redeemable account based upon said transaction credit value;

          decreasing an account balance in said redeemable account based upon a redemption value input at said authorized point of sale transaction terminal; and

35



sending transaction data and redeemable account balance data from a host located remote from said authorized point of sale transaction terminal to said authorized point of sale transaction terminal.

5

58. A method of accumulating redeemable purchasing value based upon a point of sale transaction comprising:

designating a redeemable account at a selected one of a plurality of authorized point of sale transaction

10 terminals;

transmitting a designated redeemable account identifier and a transaction value input at said selected authorized point of sale transaction terminal to a host located remote from said plurality of authorized point of sale transaction terminals;

15

calculating a transaction credit value based upon a credit rate stored in a host memory located remote from said plurality of authorized point of sale transaction terminals and based upon a transaction value input at said selected authorized point of sale transaction terminal;

20

increasing an account balance in said designated redeemable account based upon said transaction credit value;

25

decreasing an account balance in said redeemable account based upon a redemption value input at said selected authorized point of sale transaction terminal; and

sending transaction data and redeemable account balance data from a host located remote from said plurality of authorized point of sale transaction terminals to said selected authorized point of sale transaction terminal.

30

59. A method for implementing a neutrally-branded, multi-merchant, frequent shopper program integrated with the point of sale and covering all forms of payment comprising the steps of:

- 5        identifying a set of participating merchants;
- identifying at least one participating consumer;
- establishing a consumer redeemable account for said
- at least one participating consumer;
- determining a total expenditure value associated
- 10    with a participating consumer expenditure transaction at
- at a selected participating merchant;
- determining a redemption value associated with said
- participating consumer expenditure transaction;
- determining a net expenditure value associated with
- 15    said participating consumer expenditure transaction,
- said net expenditure value being a function of said
- total expenditure value and said redemption value;
- determining a credit value associated with said
- participating consumer expenditure transaction, said
- 20    credit value being a function of a credit rate stored at
- a location remote from said selected participating
- merchant and a function of one of said net expenditure
- value or said total expenditure value;
- increasing said balance in said consumer redeemable
- 25    account in accordance with said credit value;
- decreasing said balance in said consumer redeemable
- account in accordance with said redemption value; and
- issuing a transaction receipt indicating said total
- expenditure value, said redemption value, said net
- 30    expenditure value, said credit value, and said balance.

60. A method for implementing a neutrally-branded, multi-merchant, frequent shopper program integrated with the points of sale and covering all forms of payment as claimed in claim 59 wherein said redemption value is  
5 less than or equal to a balance in said consumer redeemable account.

61. A method of accumulating redeemable purchasing value based upon a point of sale transaction comprising:  
10 calculating a transaction credit value based upon a credit rate stored in a host memory located remote from a first and a second authorized point of sale transaction terminal and based upon a transaction value input at said first authorized point of sale transaction  
15 terminal;  
producing an absolute credit value at said second authorized point of sale transaction terminal;  
increasing an account balance in a redeemable account designated at said first authorized point of  
20 sale transaction terminal based upon said transaction credit value;  
increasing said account balance based upon said absolute credit value;  
decreasing an account balance in said redeemable  
25 account based upon a redemption value input at said authorized point of sale transaction terminal; and  
sending transaction data and redeemable account balance data from a host located remote from said  
authorized point of sale transaction terminal to said  
30 authorized point of sale transaction terminal.

62. A method of accumulating redeemable purchasing value based upon a point of sale transaction as claimed in claim 61 wherein said absolute credit value corresponds to a value indicated on an authorized system coupon, a value indicated on an authorized system rebate, or a value indicated on an authorized system absolute credit.
63. A point of sale transaction terminal operative to:  
display and print transaction data;  
detect and transmit a consumer identifier;  
produce and transmit a transaction terminal identification signal;  
record and transmit a transaction value;  
record and transmit a redemption value; and  
communicate with a host controller located remote from said point of sale transaction terminal so as to receive said transaction data including a transaction credit value and an account balance in a redeemable account corresponding to said consumer identifier.
64. A point of sale redeemable purchasing value accumulation system comprising:  
a plurality of authorized point of sale transaction terminals, each of said terminals including a terminal display, a transaction record printer, a consumer data recording member, a transaction terminal identifier, a transaction value recording member, a redemption value recording member, and a transaction terminal data input/output port;  
a host memory located remote from said plurality of authorized point of sale transaction terminals; and  
a host controller located remote from and in communication with said plurality of authorized point of sale transaction terminals and operative to

calculate a transaction credit value  
based upon a credit rate stored in said host  
memory and a transaction value input at a  
selected one of said plurality of authorized  
point of sale transaction terminals,  
5           increase an account balance in a  
redeemable account designated by said consumer  
data recording member at said selected  
authorized point of sale transaction terminal  
10       based upon said transaction credit value,  
          decrease an account balance in said  
redeemable account based upon a redemption  
value input at said selected authorized point  
of sale transaction terminal, and  
15           send transaction data and redeemable  
account balance data to said selected  
authorized point of sale transaction terminal.

65. A point of sale redeemable purchasing value  
20   accumulation system comprising:  
          a first authorized point of sale transaction  
terminal including a terminal display, a transaction  
record printer, a consumer data recording member, a  
transaction terminal identifier, a transaction value  
25   recording member, a redemption value recording member,  
and a transaction terminal data input/output port;  
          a second authorized point of sale transaction  
terminal including a terminal display, a transaction  
record printer, a consumer data recording member, a  
30   transaction terminal identifier, an absolute credit  
value recording member, and a transaction terminal data  
input/output port;  
          a host memory located remote from said first and  
second authorized point of sale transaction terminals;  
35   and

a host controller located remote from and in communication with said first and second authorized point of sale transaction terminals and operative to

calculate a transaction credit value

5 based upon a credit rate stored in said host memory and based upon a transaction value input at said first authorized point of sale transaction terminal,

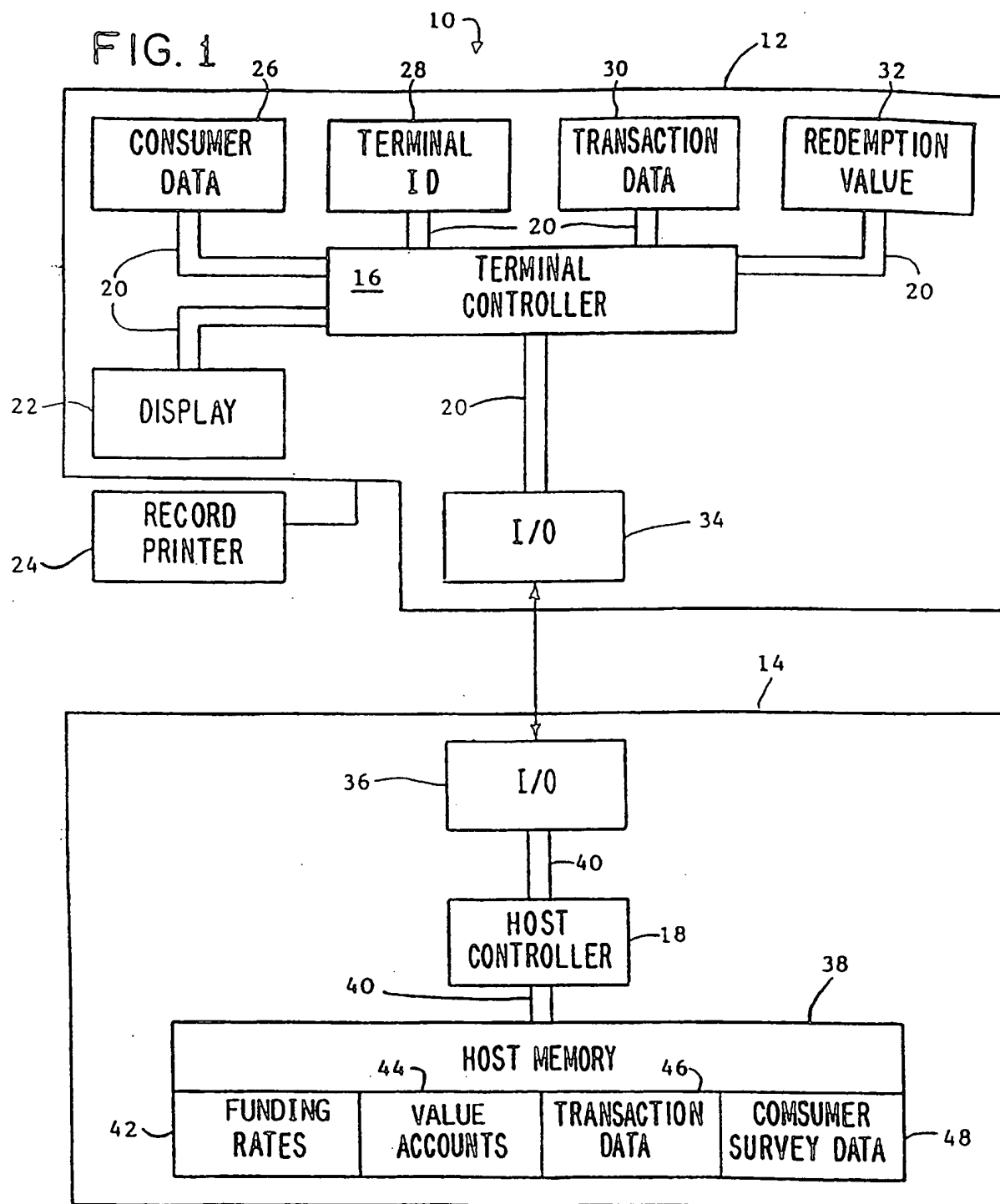
10 increase an account balance in a redeemable account designated by said consumer data recording member based upon said transaction credit value,

15 decrease said account balance in said redeemable account based upon a redemption value input at said first authorized point of sale transaction terminal,

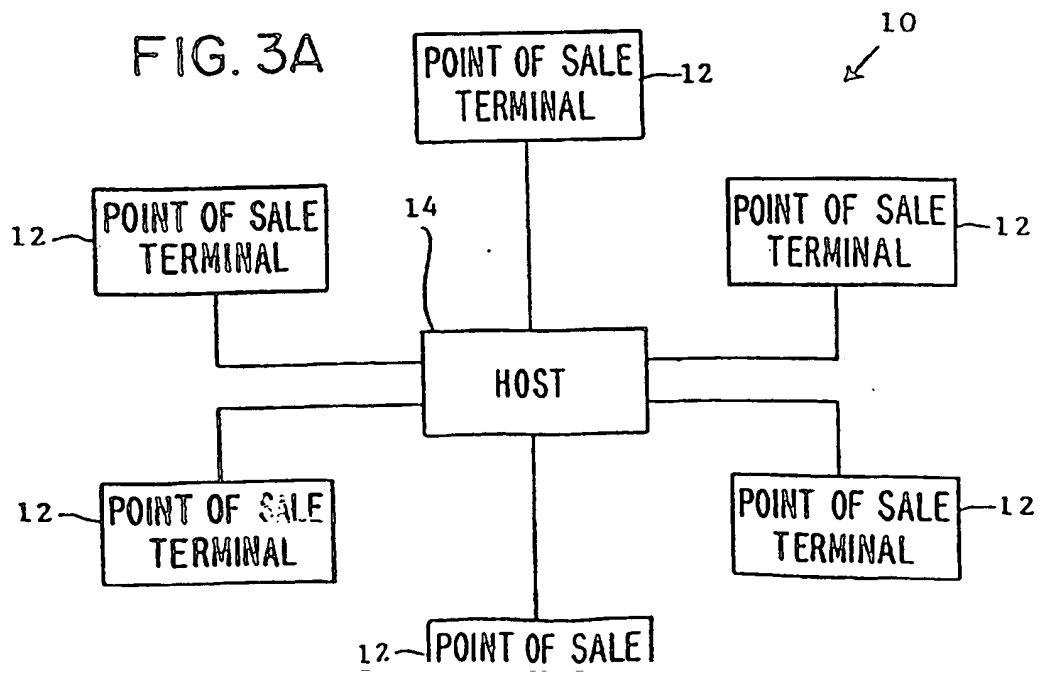
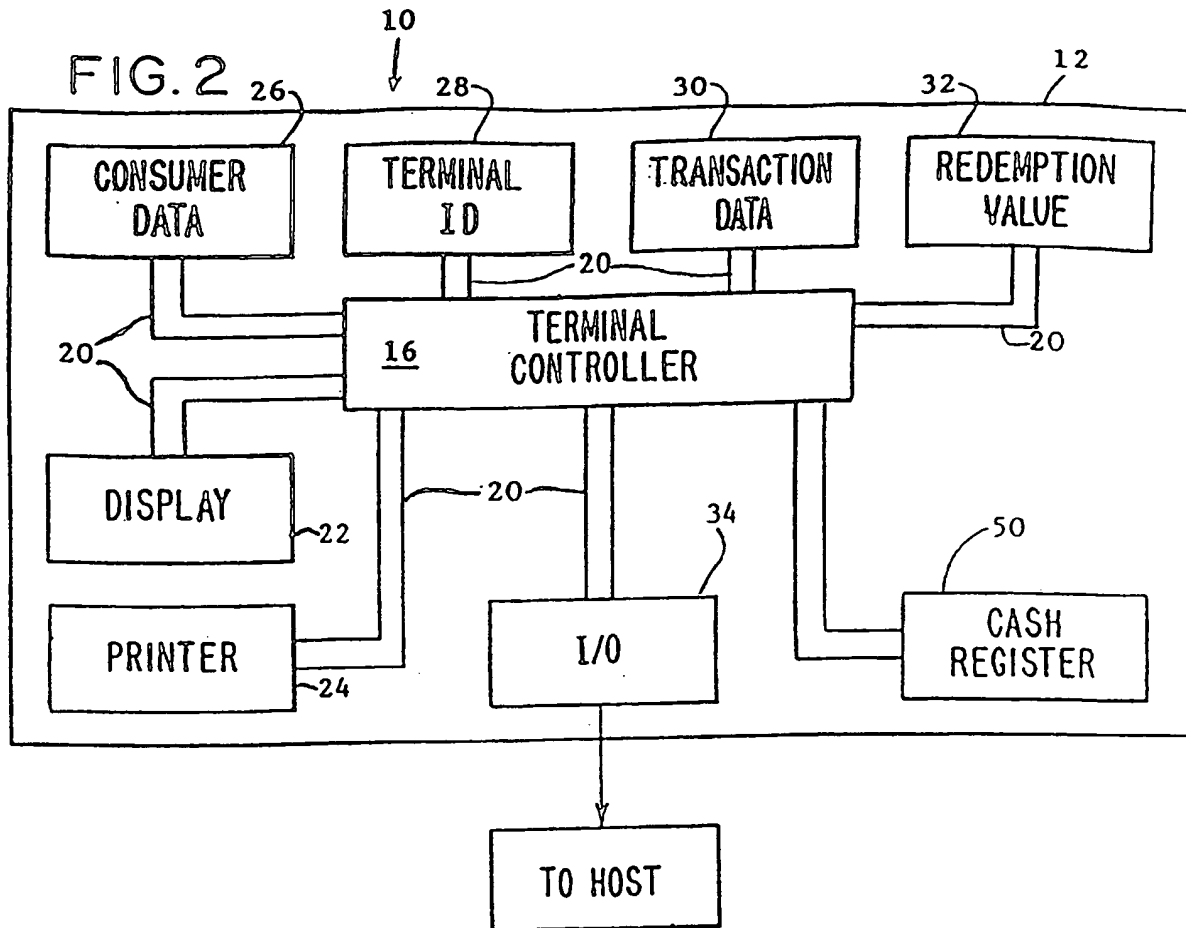
20 increase said account balance in said redeemable account based upon an absolute transaction credit value recorded by said absolute credit value recording member, and

send transaction and redeemable account balance data to said authorized point of sale transaction terminal.

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2/9





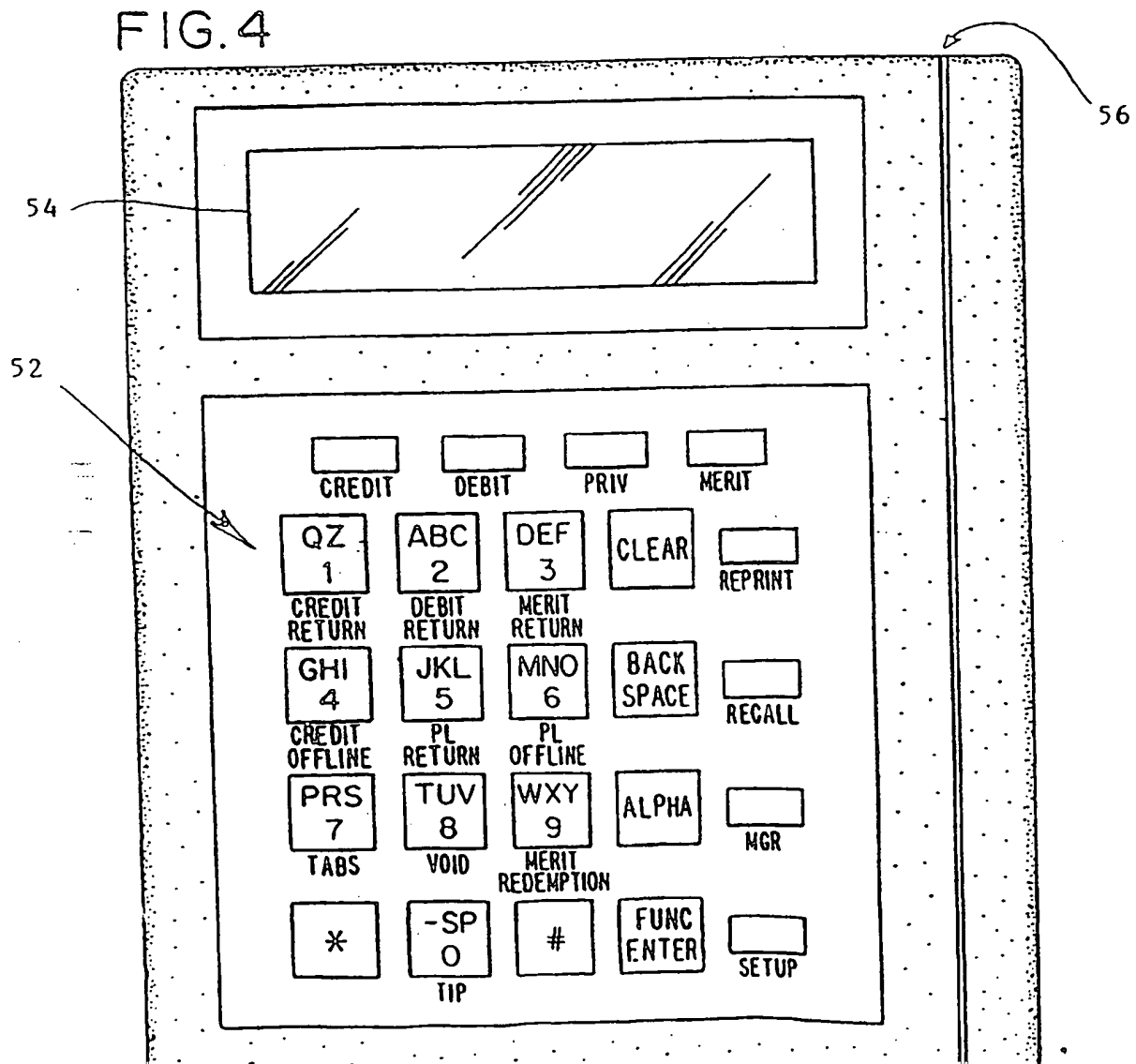
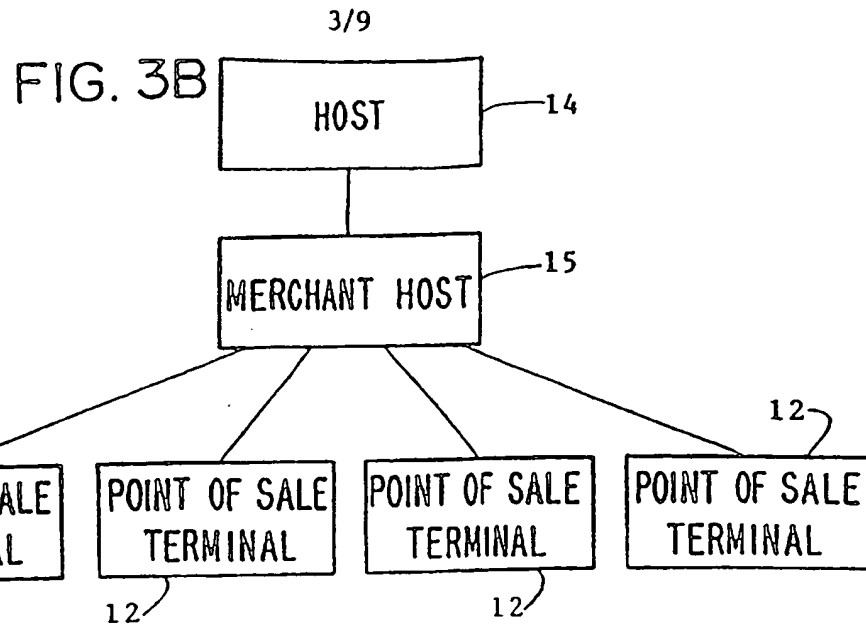


FIG. 5

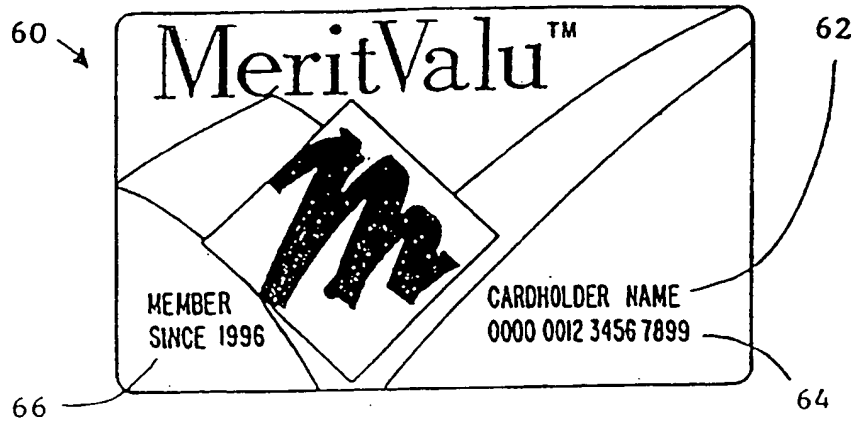


FIG. 6

70

76 72

MEMBERSHIP PROFILE

80

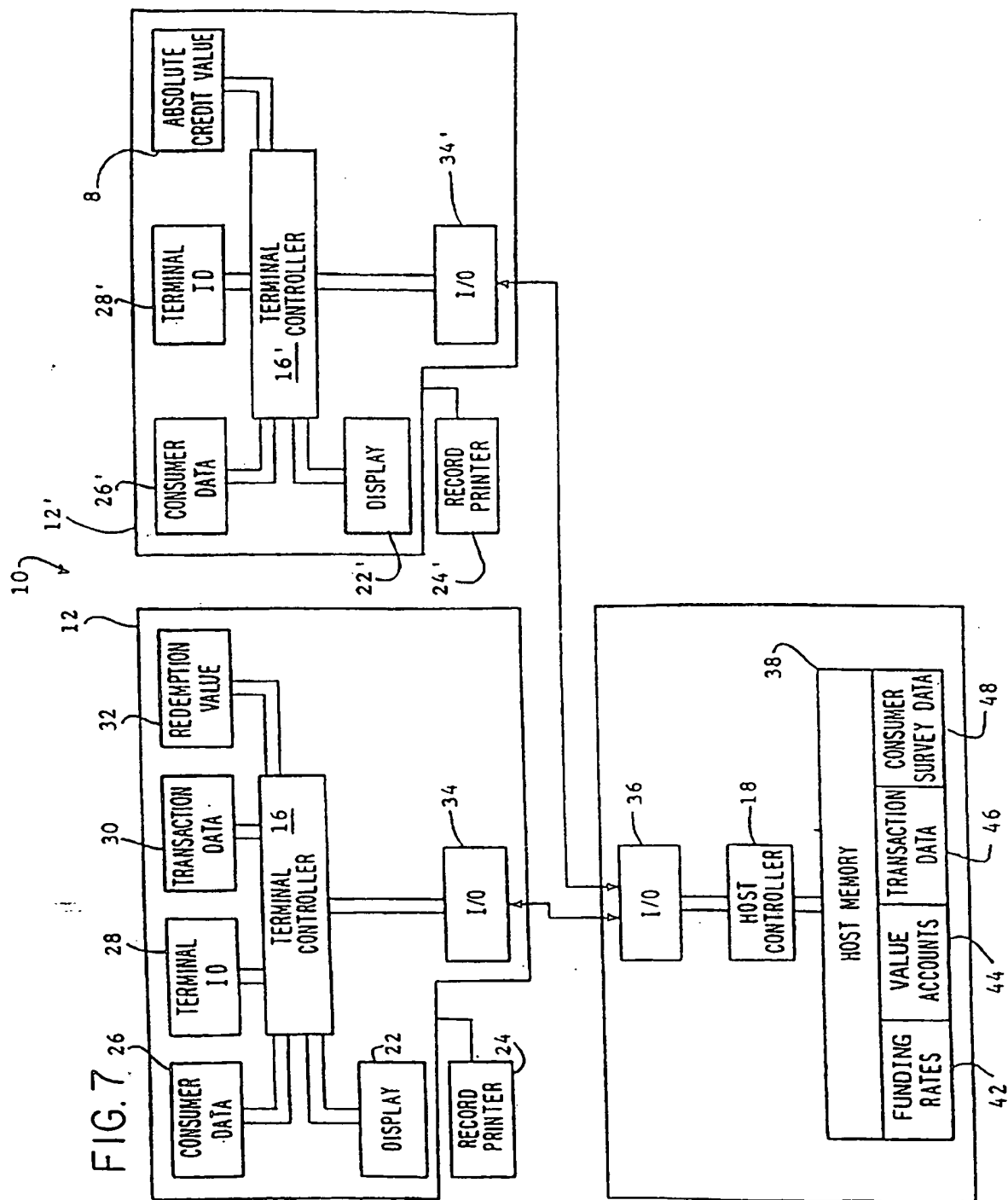
SURVEY INFO

78

74

MeritValu™

1996



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FIG. 8A

TEST MERCHANT RESTAURANT TERMINAL  
MERCHANT ADDRESS  
CITY ST ZIP  
PHONE

DATE: 05/14/96 TIME: 03:30 PM  
ACCT# 08277  
CARD TYPE MERIT VALU  
TRAN TYPE MERITVALU  
TERMINAL # 12345002  
AUTH CODE APPROV  
RECORD # 004

AMOUNT \$13.82

MERITVALU

MERITVALU MONEY:  
EARNED \$0.69  
CURRENT BALANCE \$58.74

THANK YOU

HAVE A NICE DAY  
PLEASE COME AGAIN

TOP COPY-MERCHANT BOTTOM COPY-CUSTOMER

FIG. 8B

TEST MERCHANT RESTAURANT TERMINAL  
MERCHANT ADDRESS  
CITY ST ZIP  
PHONE

DATE: 05/14/96 TIME: 03:19 PM  
ACCT# 00187  
CARD TYPE MERIT VALU  
TRAN TYPE MERITVALU  
TERMINAL # 12345002  
AUTH CODE APPROV  
RECORD # 002

AMOUNT \$45.75  
REDEMPTION AMT \$-25.00  
AMOUNT DUE - 20.75

X\_\_\_\_\_

REDEMPTION

MERITVALU MONEY:  
EARNED \$1.04  
REDEEMED \$-25.00  
CURRENT BALANCE \$56.31

THANK YOU

HAVE A NICE DAY  
PLEASE COME AGAIN

TOP COPY-MERCHANT BOTTOM COPY-CUSTOMER

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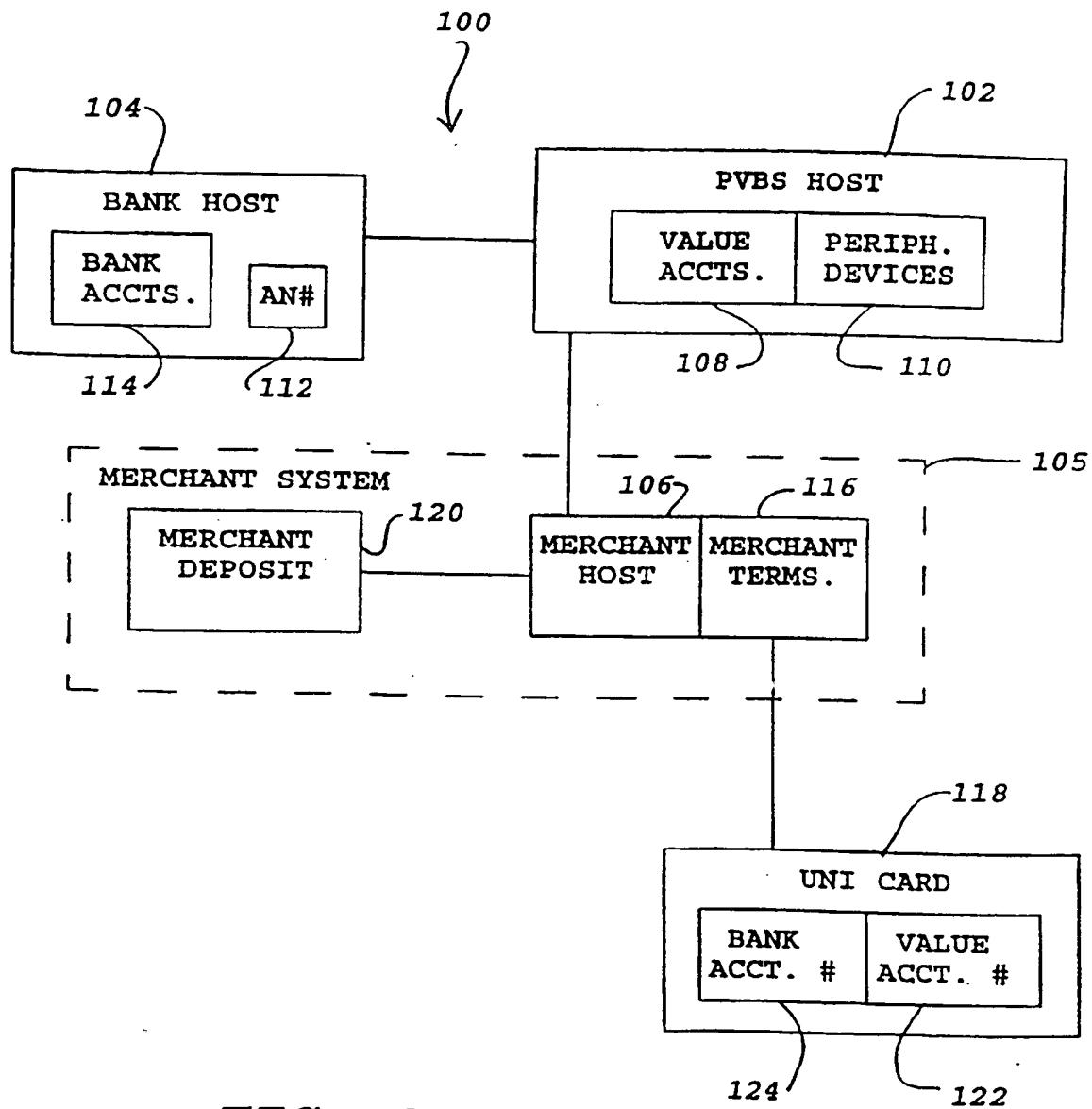
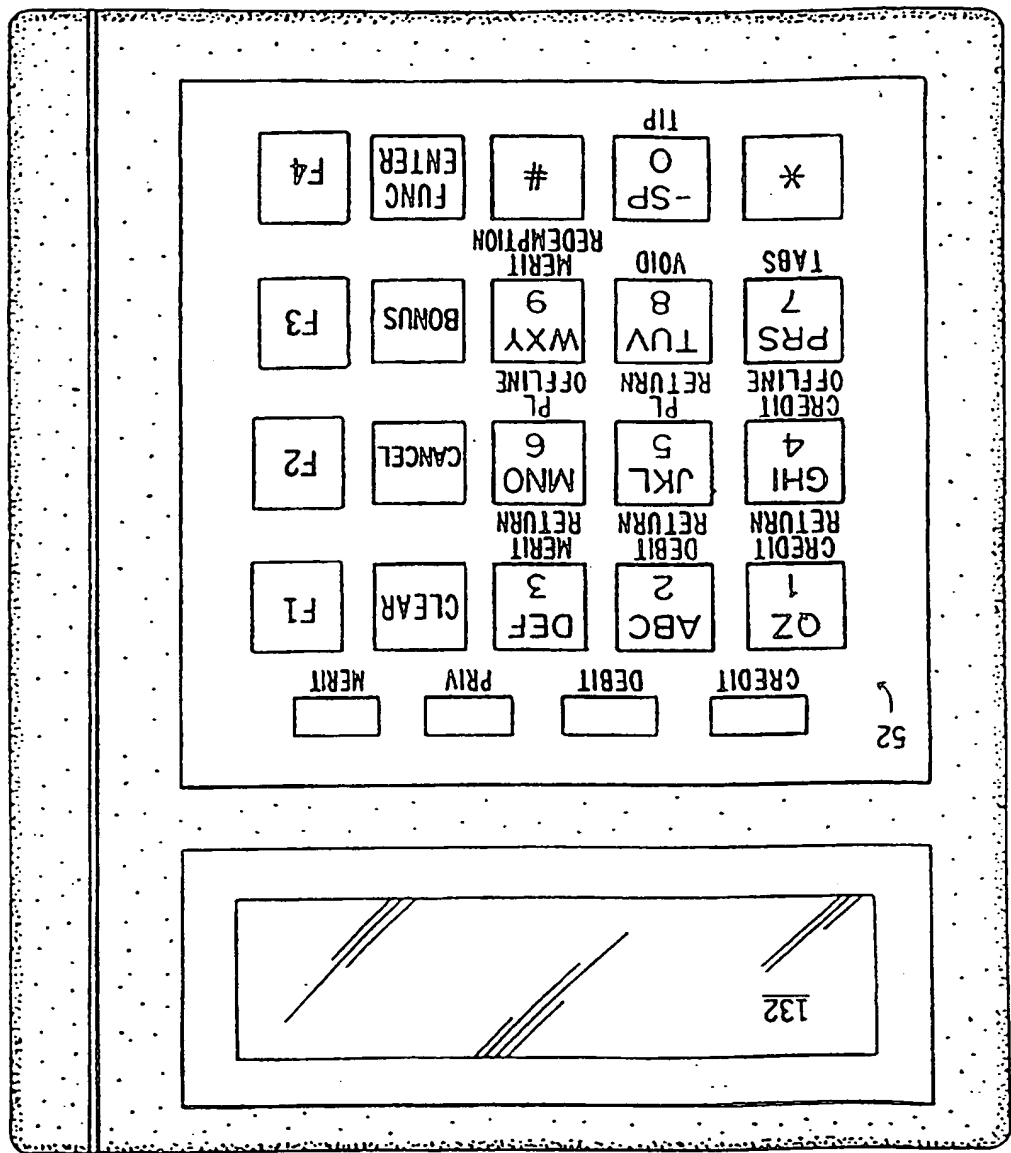


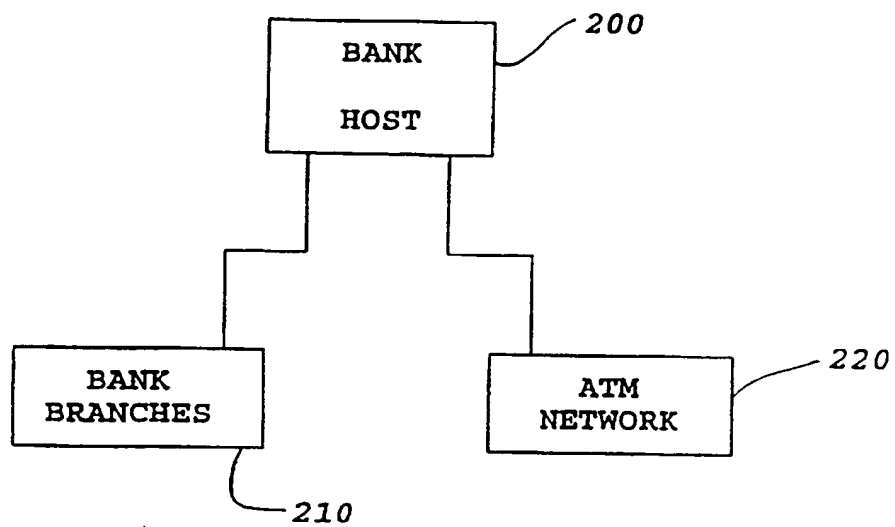
FIG. 9

Fig. 10



130

116



*FIG. 11*

# INTERNATIONAL SEARCH REPORT

Int. Natl. Application No.  
PCT/US 97/09085

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|------------|--|-----------------------|
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| X          | ANONYMOUS: "Portable Self Checkout Retail<br>System."<br>IBM TECHNICAL DISCLOSURE BULLETIN,<br>vol. 35, no. 1A, June 1992, NEW YORK, US,<br>pages 315-318, XP000308880<br>see the whole document<br>---        | 1-65                  |

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "Z" document member of the same patent family

Date of the actual completion of the international search

24 October 1997

Date of mailing of the international search report

19. 11. 97

Name and mailing address of the ISA

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Authorized officer

Gardiner, A



# INTERNATIONAL SEARCH REPORT

Inte .ional Application No

PCT/US 97/09085

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
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| A          | <p>US 5 455 407 A (ROSEN SHOLOM S) 3 October<br/>           1995<br/>           see column 3, line 40 - column 5, line 44;<br/>           claims 1-9; figure 7</p>  | 1-65                  |
| A          | <p>EP 0 711 434 A (CREDIT VERIFICATION CORP)<br/>           15 May 1996<br/>           see page 3, line 20 - line 25<br/>           see page 9, line 3 - line 28<br/>           see page 13, line 16 - page 14, line 6</p>  | 1-65                  |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. l. Application No

PCT/US 97/09085

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
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Information on patent family members

Int. l. Application No

PCT/US 97/09085

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
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